



**EXPLORATION COMMITTEE**

**SUMMARY REPORT TO THE  
COMMITTEE**

**THE SYSTEM DEFINITION REVIEW  
SDR KICKOFF MEETING  
CONDUCTED AT HUNTSVILLE, AL  
10 AND 11 SEPTEMBER 2007**

**Attended by  
LtGen James Abrahamson**



# SDR KICKOFF MEETING



- **Attending the meeting was part of the Requirements Review Process Review being conducted by the NAC Exploration Committee.**
- **This Review was a logical follow on to the earlier Requirements Document Review Conducted at NASA Hq.**
- **The Requirements Review has included Requirements Documents, translation of these into Procurements, also a sampling of the Role of Stretch Requirements and Small Business Activities.**





# PURPOSE AND SCOPE OF THE MEETING



- **First formal meeting in the SDR process for Ares 1 Project.**
- **Conducted under the auspices of JPO1, led by Stephen Cook, Administered by Robert Moon (contact at 256-544-8735 or SDR “Dashboard” <https://ice.exploration.nasa.gov>.**
- **100 plus participants from all centers, SAIC Aerospace, others.**
- **Included 1+1/2 days of Ares briefings, review of 3 key Ares program documents: Mission Systems IRD, CLV /Comm and Tracking Network IRD, and CLV Mission Systems IRD.**





# MEETING DESCRIPTION



- **Derivation of old System Design Review.**
- **In depth process of review meetings with extremely broad participation.**
- **Most of reviewers seemed familiar with architecture context, earlier definition activities.**
- **Included further involvement via NASA teleconferencing.....several hundred people.**
- **First meeting in series of reviews.**





# DETAILED SEVERAL MONTH SCHEDULE



- **Documentation and Tracking via NASA Automated Concert RID Tool. No questions, so I assume this process and administrative tools seemed well understood.**
- **My conclusion: The SDR review process an important tool in the following:**
  - **Incorporating “many eyes and brains” on mission.**
  - **Ensuring NASA NASA technical leadership for contractors.**
  - **Socializing important sets of standards and specifications (I thought this was vital in the context of restoring standards based technical contracting and abandonment of many former Military Specifications within DoD.**





# ONE KEY STEP IN “NEW NASA” ”DESIGN REVIEW PROCESS



- **Vital step in inter-contractor coordination (but integration process is still not fully clear as over 4 Billions of contracts still to be let within the next few months).**
- **Up front emphasis on clear adherence to schedules and documentation standards:**
  - **Examples—facility and test facility planning, including certifications (even though several key test capabilities not yet developed).**
  - **Specified goals on reducing design review time.**
  - **Significant emphasis on Risk Evaluation and Risk Process Discipline.**





# IMPORTANT “UP FRONT” EMPHASIS ON COST CONTROL



- Not merely attention to applying development budget limits...clear attention to progress milestones and dollar availability (shortages?)
- Building on last year’s “Cost Sufficiency Review” [we need to coordinate with other NAC committees on the evaluation of this process!].
- Future “recurring cost requirements” – using analogous system comparison strategy.
- Discussion of “affordability planning and project cost analysis”. However, the projection of future costs over decades seems an area for much additional work!
- Big question: Planning future NASA employee costs!





# ONGOING PROJECT RISK MANAGEMENT



- **Clear, important technical decisions versus “letting the paper drive the process”:**
  - Friction Stir Welding is being fully developed versus “demonstration”– quality, tests, standards, etc.
  - Attitude Propulsion Thrusters Test Facility at Stennis
  - New core tooling for 5 segment motors.
  - Electronic Integration Laboratories.
  - Actuator Test Laboratory—testing the way old systems interact with new”.
  - Adding acoustic SRB tests in November.
  - Many more at all levels.....





# RISK MANAGEMENT CONTINUED



- **Evaluating Non-Conformance Risks:**
  - Orbital injection accuracy maps
  - Policy on two fault tolerance requirements.
  - The array of Verification Requirements.
  - Functional Analysis Capabilities for Interface Controls and their documentation – risk.

**Modeling and Simulation Certification:  
Cascading Integration Testing.**

- **But the trail to the future is extremely complex, underfunded, and subject to unplanned for problems.**





# AREAS FOR MORE NAC EMPHASIS



- **Interactions between significant system components: an example is the mis-match between ARES lift capability and Orion mass.**
- **Comparative funding of key elements: i.e. ongoing new test facility development schedules.**
- **Policies/Risk Management System maturity.**
- **NASA integration of contractor efforts.**
- **People communications....com...com....com.**

